March 14, 2003

Mr. Stephen L. Johnson
Assistant Administrator for
Prevention, Pesticides and Toxic Substances
US Environmental Protection Agency (7101M)
1200 Pennsylvania Avenue NW
Washington, DC 20460

Re: Letter of Intent for the Telomer Research Program

Dear Mr. Johnson:

The parties to this letter, as members of the Telomer Research Program (TRP)[1] which comprise the major telomer producers, have prepared this Letter of Intent (LOI) to address questions raised by the US Environmental Protection Agency (EPA) about the possible association of perfluorooctanoic acid (PFOA) with telomer-based products. The purpose of this letter is to affirm our commitment to responding to the concerns of the EPA and to provide a summary of (i) the actions the parties are pursuing in 2003, (ii) additional product stewardship measures that the TRP members will implement, (iii) information that the TRP will provide the EPA, and (iv) work conducted to date.

The TRP is evaluating telomer products sold in the United States to determine whether they contribute to significant human or environmental exposure to PFOA. Our evaluation has six key components.

1. Analysis of products and articles
2. Analysis of "aged" products and "in use" articles
3. Characterization of potential release of PFOA from telomer-based product manufacture
4. Characterization of potential release of PFOA from telomer-treated article manufacture
5. Analysis of possible biodegradation of telomer-based polymeric products
6. Evaluation of the ultimate fate and disposal routes for telomer-treated articles in the United States

EPA has expressed a concern to our industry about reports of low but widespread levels of PFOA in human blood. We recognize that, although there is no evidence of a health effect at the levels found, the presence of PFOA in blood is a concern for EPA. Telomers are not made from PFOA, nor is PFOA added during the manufacture or use of telomer products. Questions have arisen about the potential for telomers to transform to PFOA under various conditions. We believe the potential for such transformation is small, any PFOA levels that may result from this potential conversion would be small, and the overall contribution of telomer products to human exposure to PFOA consequently would be negligible. However, the TRP members commit to

[1] The companies participating in the TRP include Asahi Glass, Clariant GmbH, Daikin Industries and E.I. duPont de Nemours & Company.

verifying that these assumptions are true and have set forth below a program of research to meet this responsibility.

Fluorotelomers are used in a number of specialized products including: water and oil repellents and barriers for carpets, clothing, upholstery, and paper; mold releases for plastic and rubber molding; aqueous film forming foams (AFFF firefighting agents); and wetting agents for floor polish, inks and a range of similar applications. There is only one TRP member company (DuPont) that manufactures both the basic telomer chemicals and end-use products in the United States. One additional TRP member (Daikin) is a manufacturer who imports the basic telomer chemicals and processes them into end-use products in the United States. The other TRP companies (Asahi Glass and Clariant) are importing end-use telomer products to the United States. Approximately 90% of the volume of telomer products goes to industrial users, who apply them to carpets, textiles and paper at the mill sites, coat them on various surfaces (e.g., molding machines), or mix them into polishes, inks and other products.

As supplied to those industrial users, telomer-based products may contain PFOA as an impurity in trace amounts. Given the known worldwide production of telomers, the levels of PFOA that would be placed in commerce per year, based on this understanding, is expected to be relatively small. We are not sure how that amount of PFOA is formed, but this information may suggest that there is some potential for telomers to transform to PFOA. We are now trying to determine whether there are relevant routes by which telomers may, in fact, transform to PFOA and to what degree these transformations take place. An important element of this LOI is our evaluation of this question.

Investigating the amount of PFOA from telomer products is made more challenging by direct inputs of PFOA from other sources into the environment and by environmental loadings from legacies attributable to widespread use of discontinued surfactants and oil- and water-repellent chemistries.

In all of the projects described in the commitment section of this LOI, the TRP members intend to deliver data that will meet EPA's guidelines for information quality.[2] Even where we are conducting relatively short-term screening analyses, we intend to meet appropriate EPA standards. Our commitment to data quality will not compromise our efforts to supply the EPA with information in an expeditious manner.

The TRP is committed to conducting a proactive program to develop additional data on environmental fate of our products, better characterize routes of exposure, strengthen product stewardship and risk communication practices, and take additional measures to reduce or prevent exposure wherever new data suggest that such changes are needed.

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[2] EPA has issued Information Quality Guidelines, in conformance with the Data Quality Act and guidance issued by the Office of Management and Budget. TRP also will consider EPA Order #5360.1 / 82 (Quality System) for further guidance on how to document QA/QC measures.

TRP Voluntary Commitment

The members of the TRP are working together to complete the assessments described below related to telomer products. TRP will provide periodic briefings to EPA staff to summarize recent results from these telomer-related studies. These briefings are expected to occur at least monthly in 2003. In addition, the TRP will provide new documents, other materials and final study reports to EPA as soon as they become available.

1. Product and Article Analysis

The TRP has contracted with an outside research laboratory to analyze for the presence of PFOA in the major end-use telomer products in commerce and articles treated with those products. TRP will provide EPA with a description of the scope and rationale for analysis of PFOA in telomer-based polymeric products and telomer-treated articles during March 2003. TRP analytical experts have developed the appropriate sampling and analysis plans as well as analytical standards for the work. Draft plans for the "Product and Article Analysis" study and "Sampling Guidance" were provided to the EPA on February 14, 2003 for review and comment. The screening study will begin in March 2003; the final report is expected by June / July 2003. The results will be provided to EPA as soon as they are available.

This analysis will address three major use categories: carpets, textiles and paper. The primary products that our members market for these applications are polymers (approximately 85% of what the TRP members manufacture and sell). The products to be tested are those that the respective TRP member companies manufacture as actual items of commerce. While there are many potential telomer polymeric products, a relatively small number represent the primary product classes in commerce (12 products). As a result, the TRP will provide EPA with a comprehensive initial picture of exposure potential by focusing on these major end-use polymers and the corresponding articles of commerce. The treated articles to be tested are actual carpet, textile, and paper substrates treated under representative mill conditions with the subject telomer-based polymeric products.

The chemical identities of these particular polymers, volumes, and their relative market share, are Confidential Business Information (CBI). The TRP members intend to provide the Agency with specifics about each polymer to be tested, such as its structure, CAS number, chemical name, 2002 use and volume in commerce, through company-specific submissions. This information will be supplied to the EPA by March 24, 2003. TRP companies will also provide EPA (under CBI) specifics such as structures, CAS numbers, chemical names, 2002 uses and volumes in commerce of all other telomer products used in the United States (including non-polymeric products) by May 2003.

2. Analysis of "Aged" Products and "In Use" Articles

The TRP members will examine transformation of end-use telomer products for potential PFOA generation that might occur through storage of the product over time or through normal use of treated articles. TRP will develop a plan by April 2003for conducting PFOA "aging" and "in use" analyses of the specific products and treated articles that are the subject of the TRP-sponsored work in Item 1 above. For these analyses, "aged" means the likely conditions our

products will see under normal storage and distribution. "In-use" means the conditions treated articles will see under normal distribution and use. Study protocols, analytical methods and appropriate test conditions will be developed for this work during the second quarter 2003 as this reflects a new area of research for the TRP. Results of this study are expected to be complete in the third quarter 2003. The study protocols will be designed to achieve expeditious results while determining whether or not PFOA releases arise from real-world conditions, consistent with EPA's quality guidelines / procedures.

3. Characterizing Potential Release of PFOA from Telomer-Based Product Manufacture

In February 2003, the TRP presented to EPA a general description of the process chemistry employed in telomer manufacturing and processing operations. As a follow up, the TRP will prepare and submit a generalized process schematic and description to the EPA by end of March 2003. However, each TRP member company uses unique processes in its manufacturing operations. Each member company will provide the location of each US-based TRP member telomer processing and manufacturing facility by March 24, 2003 and meet separately with the Agency to explain its overall individual process, focusing on its operations in the United States. Each member company will also share information about potential release of PFOA or exposure points from its US-based processes by the end of April 2003. The companies will define action plans by the end of May 2003 to investigate the potential for PFOA release and exposure. The members of TRP are available to begin discussions immediately and will call individually to schedule these briefings.

In addition to the TRP-sponsored studies described above, DuPont, which is the only fully integrated US telomer producer, makes the commitments set forth in Appendix 1.

4. Characterizing Potential Release of PFOA from Telomer-Treated Article Manufacture

The TRP members will examine the potential for PFOA releases or occupational exposures at US facilities that manufacture telomer-treated articles. In order to conduct research on articles of commerce efficiently, we believe this information is best assembled through a release estimate model analysis directed at manufacture of the three primary telomer-treated article types – carpet, textiles and paper – that are addressed in other TRP workstreams. The TRP will conduct a study to determine the estimates of potential release of PFOA. In this analysis we will attempt to identify potential release points, exposure pathways, and ultimate environmental compartments (air, land, water) for potential PFOA emissions from telomer-treated article manufacturing processes. It is our expectation that this analysis will be complete by June / July 2003. The final reports from this analysis will be provided to the EPA no later than August / September 2003.

While the release estimate studies are underway, the TRP will proceed to develop and demonstrate the required sampling and analytical methods for PFOA in the mill simulations described below. We expect this work to be completed in the third quarter 2003. The release estimate analysis will be used to first design and then conduct mill simulations of the potential release of PFOA from telomer-treated article manufacturing operations. A contract laboratory capable of simulating the actual mill environment under defined and known conditions will be used to verify the data generated in the above release estimate study. The mill simulations are

expected to begin during the third quarter 2003. The results from the analysis and simulations will be used to estimate the potential occupational and environmental exposure to PFOA from the specified telomer-treated article manufacturing processes. This work, along with the Product and Article Analysis in Item 1 of this letter, is expected to provide a more comprehensive picture to aid in the understanding of the potential occupational and environmental exposure to PFOA from telomer-treated article manufacturing processes.

5. Biodegradation Analysis

The TRP will gather information about whether and how telomers might degrade to PFOA through biodegradation under environmentally relevant conditions. The TRP will conduct further biodegradation studies; see "Continuation of TRP Research Activities" for method development studies with the 8-2 Telomer Alcohol to test for the potential generation of PFOA. These studies will follow appropriate OECD protocols for the telomer-based polymeric products used in the Product and Article Analysis (Item1). These screening tests will provide useful data on the potential for biodegradation to PFOA from major end-use telomer-based polymeric products. TRP will develop the study approach, protocols and rationale, and submit these to the US EPA by April 2003 for review and comment. Then in the second/third quarter 2003, we will conduct the biodegradation analysis of the telomer-based polymeric products selected for the study above. Initial results are expected beginning in July 2003. Final reports will be submitted to EPA as soon as they become available.

6. Analysis of Incineration

The TRP has begun to compile information on the ultimate fate and disposal routes (incineration versus landfill) of the telomer-based polymeric products and articles treated in the United States. The results of this study will be provided to EPA by July 2003. Concurrently, TRP will examine information available on types of incineration tests that may be applicable and will provide this information to EPA by the end of the second quarter 2003.

Related Activities

Information Exchange

Over the last several years the TRP member companies have prepared and collected numerous studies and reports about telomers. Many of these documents are drawn from the public literature, but some represent unpublished reports. In addition, we have unpublished reports that have been produced for the TRP. Both the published and unpublished documents include summaries from TRP and non-TRP studies on physical-chemical properties, toxicology, pharmacokinetics, and environmental fate and effects.

To expedite the flow of information, TRP will provide the EPA with a listing of the documents in the TRP database by March 24, 2003. Copies of the documents will follow as soon as they can be compiled but no later than April 15, 2003. If EPA requests company-specific information, the company will supply the information to EPA with appropriate confidential business information claims, as provided for under EPA regulations.

In addition, TRP will provide new documents, other materials and final study reports to EPA as soon as they become available. Individual companies will also submit documents, information, and final study reports to EPA related to their own studies on products sold in the US market as soon as they become available. In addition, TRP will continue to provide periodic briefings to EPA staff to summarize recent results from these telomer-related studies. These briefings are expected to occur at least monthly in 2003. TRP will also provide EPA advance notice of upcoming studies and reports.

Product Stewardship for Customers

The TRP members are committed to the continued safe manufacture and use of telomer-based products. The TRP acknowledges that it is equally important to continue to establish and support responsible occupational health and environmental practices in the use of telomer products.

TRP member companies have in place product stewardship practices with their customers related to the application, use and occupational exposure to telomer-based products, and have each adopted workplace health and safety practices to minimize occupational exposure. These activities are essential parts of long-standing product stewardship programs and are ongoing.

Further efforts on occupational product stewardship programs will focus on technical support and assistance to telomer-based product users (customers) to assist them in keeping their occupational safety and health programs current. Accordingly, the TRP members' product stewardship role is to provide the necessary information, assist in the understanding of the information, and provide support to customers using telomer-based products.

The TRP has no single unified product stewardship program. As a result, the TRP member companies plan to have additional product stewardship programs in place by July 2003. These programs will be developed with reference to the Responsible Care guidelines outlined in SOCMA Management Practices / Product Stewardship Code. Each member company will provide documented evidence for their respective programs to EPA by July 2003.

In addition, the TRP believes the development and distribution of a "Safe Handling and Use" handbook would be a valuable tool for our customers. This handbook would amplify the basic information contained in MSDS to provide additional information about telomers and suggestions for overall occupational exposure reduction measures for our customers' consideration. In developing such a product, we would focus on ways to make it user friendly and practical. This TRP handbook will be developed for customer review by August 2003.

Continuation of TRP Research Activities

The TRP has had a research program underway for two years, which has focused primarily on the 8-2 Telomer Alcohol. Many of these efforts will be producing important results in 2003. In light of EPA's expressed interest in the potential formation of PFOA from telomer-based products, the TRP is reconsidering the priority of new work on the 8-2 Telomer Alcohol. The TRP intends to complete the majority of the projects that are already underway.

Relative to some of our current work efforts, we very clearly understand there is concern within the EPA that it has taken too long to clarify whether there is biodegradation of our products to PFOA. Much of this time is attributable to our efforts to develop ^{14}C-labeled material that could be used in the biodegradation studies. TRP now has a supply of this material. We anticipate the quality and significance of the data we obtain with this ^{14}C-labeled material will provide information valuable enough to justify the time and effort spent.

Appendix 2 describes the 8-2 Telomer Alcohol workstreams the TRP has completed to date as well as those underway. The results from the completed studies either have been submitted to the US EPA's Administrative Record 226 (AR-226) or will be submitted as soon as the final report is completed. Appendix 3 contains a list and schedule of the reports from the TRP work on the 8-2 Telomer Alcohol, including those reports that will be provided to EPA during the remainder of 2003. Final study reports from TRP-sponsored studies will be submitted to EPA as soon as they become available.

We believe the actions described in this letter represent a responsive and responsible commitment by the TRP member companies to help address EPA's expressed interest in the potential for PFOA exposure from telomer-based products. We have made these commitments as tangible as possible, including specific timelines. For convenience, we have summarized these commitments and timelines in Appendices 4 and 5.

The TRP members appreciate the opportunity to work with EPA on this important matter and agree that communicating the progress on our efforts and sharing of information is important. Accordingly, we will continue to communicate with EPA when important information arises.

In closing, we would like to emphasize that the TRP is committed to the continued safe manufacture, processing and use of telomer chemistry. We look forward to working with EPA in the future to achieve these goals.

Respectfully submitted,

TRP Member Companies

Signature: N. Okuno
Name: H. Okuno
Title: President
AGA Chemicals, Inc.

Signature: _____
Name: _____
Title: _____
Clariant GmbH

Signature: _____
Name: _____
Title: _____
Clariant GmbH

Signature: _____
Name: _____
Title: _____
Daikin America, Inc.

Signature: _____
Name: _____
Title: _____
E.I. duPont de Nemours & Company

Signature: _____

Name: _____

Title: _____

AGA Chemicals, Inc.

Signature: Hans Ludwig Panke by sk

Name: Hans Ludwig Panke

Title: Mgr Textile Chemicals

Clariant GmbH

Signature: Reinhard Jung by sk

Name: Reinhard Jung

Title: Toxicologist

Clariant GmbH

Signature: _____

Name: _____

Title: _____

Daikin America, Inc.

Signature: _____

Name: _____

Title: _____

E.I. duPont de Nemours & Company

Signature: _____

Name: _____

Title: _____

AGA Chemicals, Inc.

Signature: _____

Name: _____

Title: _____

Clariant GmbH

Signature: _____

Name: _____

Title: _____

Clariant GmbH

Signature: [signature]

Name: Tokahiko Sakamoto

Title: President

Daikin America, Inc.

Signature: _____

Name: _____

Title: _____

E.I. duPont de Nemours & Company

Signature: _____

Name: _____

Title: _____

AGA Chemicals, Inc.

Signature: _____

Name: _____

Title: _____

Clariant GmbH

Signature: _____

Name: _____

Title: _____

Clariant GmbH

Signature: _____

Name: _____

Title: _____

Daikin America, Inc.

Signature: Stephen H Korzeniowski

Name: Stephen H. Korzeniowski

Title: Innovation Leader

E.I. duPont de Nemours & Company

APPENDIX 1

E.I. duPont de Nemours Company (DuPont) Telomer Manufacturing Facility Commitment

DuPont manufactures telomers in the United States at the following sites:

- Chambers Works in Deepwater, New Jersey
- Washington Works in Parkersburg, West Virginia

DuPont commits to the following with respect to manufacturing operations at these sites:

1) Develop site specific plans to assess levels of PFOA in air and water from manufacturing operations around each site; development of plans will begin not later than 30 days after the date of this letter.

2) Conduct site-specific air dispersion modeling for applicable manufacturing operations, using the EPA approved Industrial Source Complex Short Term 3 (ISCSTS) model, as described in EPA's Guideline on Air Quality Models (40 C.F.R. Part 51, Appendix W), and assess the results using the air screening levels established in West Virginia.

3) Conduct ground and surface water analyses at each site, and assess the results using the water screening levels established in West Virginia.

4) Use the West Virginia screening levels to determine what additional actions, if any, may need to be taken, after reviewing the information with EPA.

Six months after this Letter is submitted, reports will be submitted for each site on progress made with respect to environmental assessments.

In addition to the environmental assessment commitments made above, DuPont will, by April 1, 2003, provide EPA with applicable existing industrial hygiene air monitoring data for PFOA from DuPont operations at Chambers Works. Also by April 1, 2003, the DuPont telomers business will provide EPA with summary data on existing employee blood monitoring results (taking steps to preserve confidentiality) from telomer manufacturing operations and PFOA recycle operations at Chambers Works.

APPENDIX 2

Summary of TRP Research Activities on 8-2 Telomer Alcohol

8-2 Telomer Alcohol Studies **

Work Complete Work Underway

Study Description	STATUS	2001 1Q	2001 2Q	2001 3Q	2001 4Q	2002 1Q	2002 2Q	2002 3Q	2002 4Q	2003 1Q	2003 2Q	2003 3Q	2003 4Q
TOXICOLOGY & DESCRIPTIVE BIOLOGY													
Acute Oral Toxicity	complete	■	■	■									
Repeated-Dose Range-Finding Oral Toxicity Study	complete		■	■	■								
Subchronic 90 Day Oral Gavage (Rat) with 90-Day Recovery	complete					■	■	■	■				
Bacterial Reverse Mutation	complete			■	■	■							
Bone Marrow Erythrocyte Micronucleus Test (Rat)	complete			■	■	■							
ENVIRONMENTAL FATE & EFFECTS													
Environmental Fate Studies													
Hydrolytic Stability	complete						■	■	■				
Adsorption-Desorption: Analytical Method	complete								■	■			
Adsorption - Desorption: Soil, Sediment & Sludge (14C)	in progress									■	■	■	
Aerobic Biodegradation (cold material, screening, method development & standards preparation)	complete						■	■	■	■			
Aerobic Biodegradation (14C)	in progress									■	■		
Atmospheric Degradation / Indirect Photolysis in Air	complete					■	■	■	■				
Long-Range Transport Properties (Air / Water)	in progress										■	■	
Environmental Effects Studies													
Acute Fish: Fathead Minnow	complete					■	■	■					
Acute Invertebrate: *Daphnia magna*	complete					■	■	■					
Acute & Chronic Algae (72 Hour)	complete					■	■	■					
Acute Earthworm (14 Day)	complete							■	■	■			
Acute Plant Seedling (21 Day)	complete							■	■	■			
Chronic Nematode (3 Day)	complete							■	■	■			
Chronic *Daphnia Magna* (21 Day)	in progress							■	■	■	■		
Physical - Chemical Properties													
Water Solubility & Water Analytical Method	complete	■	■	■	■								
UV/Visible Absorption Spectrum	complete	■											
Vapor Pressure	complete		■										
Sorption Properties	complete	■	■	■	■	■	■	■					
PHARMACOKINETICS (requires Study Material)													
Method Development & Material Handling	complete								■	■			
Pilot Experiments / Interim Results	in progress								■	■	■		
RADIOLABEL SYNTHESIS: C_7F_{15} $F_2CH_2CH_2OH$													
Chemical Synthesis Development & Demonstration (cold)	complete	■	■	■	■								
Develop, Demonstrate & Document Analytical Methods	complete				■								
Prepare Cold Standards for Synthesis Route	complete				■								
Prepare ^{13}C Material as Standard	complete					■							
Cold Synthesis Demonstration	complete					■	■						
14C Synthesis and Preparation of Study Material	complete							■	■				

** The results from the completed studies either have been submitted to EPA's Administrative Record 226 (AR-226) or will be submitted as soon as the final report is completed.

APPENDIX 3

TRP Final Report Schedule (8-2 Telomer Alcohol Studies)

The Telomer Research Program (TRP) plans to submit final study reports to the US EPA, according to the schedule below. TRP will be keep EPA apprised of any modifications to the reporting schedule. [Note: Most of the TRP studies listed below were focused on 8-2 Telomer Alcohol ($C_8F_{17}CH_2CH_2OH$; CAS #678-39-7), a primary fluorotelomer intermediate.]

January 2003 *(submitted)*

- Acute Oral Toxicity – Fixed Dose Method
- *In vivo* Rat Micronucleus Assay
- *Salmonella-E. coli* / Mammalian-Microsome Reverse Mutation Assay

March 2003

Submitted

- Acute Aquatic Toxicity Tests: Fish (Zebrafish), *Daphnia magna*, Algae (*Scenedesmus subspicatus*)
    - Limit Test with the Saturated Solution
    - Limit Test with the Water Accommodated Fraction (WAF)
- Microbial Respiration Inhibition Test with Activated Sludge

Forthcoming

- Physical-Chemical Properties of 8-2 Telomer Alcohol: Ultraviolet / Visible Absorption Spectrum, Vapor Pressure, Water Solubility and Sorption Properties
- Hydrolytic Stability of 8-2 Telomer Alcohol as a Function of pH
- Atmospheric Degradation of the Fluorinated Alcohol, $C_8F_{17}CH_2CH_2OH$
- Terrestrial Toxicity Studies: Earthworm, Nematode, Plants
- Repeated Dose Oral Toxicity Gavage Range Finding Study in Rats
- Subchronic Toxicity 90-day Oral Gavage Study in Rats
- Bioconcentration in Carp [Note: This study was conducted for Japan METI and provided to the TRP. TRP did not fund the study directly but arranged for the translation into English.]
- University of Toronto Year 1 Progress Report on Fluorotelomer Alcohols

May / June 2003

- Aerobic Ready Biodegradation of ^{14}C-Labeled 8-2 Telomer Alcohol (Modified OECD 301D) -- with transformation products and mass balance
- Chronic Toxicity Study (21-day Daphnia)

Future Submissions in 2003 (*studies not yet underway*)

- Adsorption / Desorption of 8-2 Telomer Alcohol using a Batch Equilibrium Method – Qtr 3 / 2003
- Long-Range Transport Properties (Air / Water) – Qtr 4 / 2003

APPENDIX 4

TRP Commitment Summary

In this Letter of Intent to the US EPA, the Telomer Research Program (TRP) outlines six areas of commitment and agrees to provide EPA with documents / submissions on specific plans and activities to follow through on these items. The commitment items and dates are summarized below.

1. ***Product and Article Analysis***
   Note: The products to be tested are those that the respective TRP member companies manufacture as actual items of commerce. The treated articles to be tested are actual carpet, textile, and paper substrates treated under representative mill conditions with the subject telomer-based polymeric products.
   - Description of scope and rationale for analyzing for PFOA in telomer-based polymeric products and telomer-treated articles. This study will cover representative polymeric products in commerce and the major end-use applications (carpet, textiles, and paper). Complete in March 2003.
   - Information from individual companies under CBI about each telomer-based polymeric product to be tested in this study (CAS number, chemical name or structural representation if no CAS number, product, 2002 use and volume) – to EPA by March 24, 2003.
   - Description of other telomer-based products (including non-polymeric products) and applications in the United States not included in the Product and Article Analysis, including CAS number, chemical name or structural representation if no CAS number, product and 2002 use and volume in commerce – to be provided by individual companies under CBI by May 2003.
   - Submit draft study plans for Product and Article Analysis and Sampling Guidance to EPA for review and comment – completed on February 14, 2003.
   - Conduct analytical and sample method development – by March / April 2003; conduct product and article analysis – by May / June 2003.
   - Submit final report from screening study on Product and Article Analysis – by June / July 2003.

2. ***Analysis of "Aged" Products and "In Use" Articles***
   Note: For these analyses, "aged" means the storage and distribution of products. "In-use" means the distribution and use of the treated articles.
   - Develop plan for conducting PFOA "aging" and "in use" analytical studies in initial end-use segments of carpet, textiles, and paper – by April 2003. Address specific issues such as residual monomers, leaching, degradation, "walk off," volatilization, and light exposure.
   - Develop appropriate study protocols, analytical methods and appropriate test conditions to conduct these tests during Qtr 2 / 2003.
   - Conduct "aging" and "in use" analyses of the specific products and treated articles (carpet, textiles, paper) in the TRP-sponsored work under Item 1 above, once protocols and methods are available – expected to be completed by Qtr 3 / 2003.

3. ***Characterizing Potential Release of PFOA from Telomer-Based Product Manufacture***
   - Prepare general description of the process chemistry employed in telomer manufacturing and processing operations –by end of March 2003.
   - Provide the location of each US TRP member telomer manufacturing and processing facility – by March 24, 2003.
   - Describe specific telomer manufacturing process chemistry by member companies and information about potential releases of PFOA and exposure routes from these processes (US operations) – by end of April 2003.
   - Develop action plans (by TRP member companies) to investigate the potential for PFOA release and exposure – by end of May 2003.

4. ***Characterizing Potential Release of PFOA from Telomer-Treated Article Manufacture***
   - Develop estimates of potential release of PFOA related to manufacture of the primary article types (carpet, textiles and paper) – by June / July 2003. The release scenarios to be developed will cover potential occupational and environmental exposure related to the potential release of PFOA from article manufacture.
   - Provide EPA with results of release estimations of PFOA – by August / September 2003.
   - Develop and demonstrate required sampling and analytical methods for PFOA determination in the mill simulations – in Qtr 3 / 2003.
   - Conduct mill simulations of the potential releases of PFOA from telomer-treated article manufacture to quantify the potential occupational and environmental exposure related to PFOA from article manufacture – begin during Qtr 3 / 2003.

5. ***Biodegradation Analysis***
   - Develop study approach, protocols and rationale for conducting biodegradation analyses of telomer-based polymeric products used in the Product and Article Analysis (Item 1 above) – provide to EPA by April 2003 for review and comment.
   - Conduct biodegradation studies for potential generation of PFOA from polymeric products used in the Product and Article Analysis – during Qtr 2-3 / 2003.
   - Submit results of polymer biodegradation analyses as they become available – expected to begin in July 2003.

6. ***Analysis of Incineration***
   - Compile information on telomer-based polymeric products and uses to understand the ultimate fate and disposal routes (landfill versus incineration) for telomer-treated articles in the United States – provide to EPA by July 2003.
   - Review information on types of incineration tests that may be applicable and provide this information to EPA by end of Qtr 2 / 2003.

Related Activities

Information Exchange

- Listing of documents in the TRP database – submit list to EPA by March 24, 2003. The documents will follow as soon as they can be compiled, but no later than April 15, 2003. The documents are TRP and non-TRP reports on physical-chemical properties, toxicology, pharmacokinetics, and environmental fate and effects.
- TRP will provide new documents, other materials, and final study reports to EPA as soon they become available. Individual companies will also submit documents, information, and final study reports to EPA related to their own studies on products sold in the US market, as soon as they become available.
- TRP will continue to provide periodic briefings to EPA staff to summarize current results from these telomer-related studies. These briefings are expected to occur at least monthly in 2003. TRP will provide EPA advance notice for upcoming studies and report timing.

Product Stewardship for Customers

- TRP member companies will have additional product stewardship programs in place by July 2003 developed with reference to the Responsible Care guidelines outlined in the SOCMA Management Practices / Product Stewardship Code. Each company will provide documented evidence for their respective programs – by July 2003.
- Develop TRP Safe Handling and Use Handbook – for customer review by August 2003.

Continuation of TRP Research Activities

- Proceed with studies on 8-2 Telomer Alcohol in areas of physical-chemical properties, toxicity, pharmacokinetics, and environmental fate and effects (see Appendix 2).
- Describe the method development and preliminary biodegradation studies conducted on 8-2 Telomer Alcohol (types of studies and rationale) – by March 2003.
- Submit results from biodegradation analysis of 8-2 Telomer Alcohol with both cold and ^{14}C-labeled material – by March 21, 2003 (DuPont preliminary screening cold study) and June / July 2003 (TRP ^{14}C-labeled study).
- Submit final study reports from all TRP-sponsored studies to EPA as soon as they become available.
- A schedule of TRP final report submissions for the 8-2 Telomer Alcohol studies is provided in the LOI Appendix 3. An updated list will be provided to EPA monthly in 2003.

APPENDIX 5

TRP Commitment Summary (Chronological Order)

March 2003

1. **Product and Article Analysis:** Description of scope and rationale for analyzing for PFOA in telomer-based polymeric products and telomer-treated consumer articles. This initial study covers representative polymeric products in commerce and the major end-use applications (carpet, textiles, paper). Draft study plans were provided to EPA in February 2003 for review.
2. **Product and Article Analysis:** Information from individual companies under CBI about each telomer-based polymeric product to be tested in this study (CAS number, chemical name or structural representation if no CAS number, product, 2002 use and volume in commerce).
3. **Characterize Potential Release of PFOA from Telomer-Based Product Manufacture:** Provide general description of the process chemistry employed in telomer manufacturing and processing operations. Provide Location of each US TRP member telomer manufacturing and processing facility.
4. **Biodegradation Studies (8-2 Telomer Alcohol):** Description of the method development and preliminary biodegradation studies conducted on 8-2 Telomer Alcohol (types of studies and rationale).
5. **Biodegradation Studies (8-2 Telomer Alcohol):** Deliver results from biodegradation analysis of 8-2 Telomer Alcohol with cold material (DuPont preliminary screening study).
6. **Information Exchange:** Submit list of documents, other materials and final study reports contained in the TRP database; documents to follow when compiled (April).

April 2003

1. **Product and Article Analysis:** Conduct analytical and sample method development.
2. **Analysis of "Aged" Products and "In Use" Articles:** Submit plan for conducting PFOA "aging" and "in use" analytical studies in initial end-use segments of carpet, textiles, and paper. Address specific issues such as residual monomers, leaching, degradation, "walk off," volatilization, and light exposure.
3. **Characterize Potential Release of PFOA from Telomer-Based Product Manufacture:** Description of specific telomer manufacturing process chemistry by member companies and information about potential releases of PFOA and exposure routes from these processes (US operations).
4. **Biodegradation Analysis (Polymeric Products):** Provide for EPA review the study approach, protocols and rationale for biodegradation analysis of polymeric products in the Product and Article Analysis (Item 1).
5. **Information Exchange:** Provide copies of documents and other materials from the TRP database.

May 2003

1. **Product and Article Analysis:** Description of other telomer-based products (including non-polymeric products) and applications in the United States not included in the Product and Article Analysis, including CAS number, chemical name or structural representation if no CAS number, product, 2002 use and volume in commerce – to be provided by individual companies under CBI.
2. **Product and Article Analysis:** Conduct product and article analyses and compile results.
3. **Characterize Potential Release of PFOA from Telomer-Based Product Manufacture:** TRP member companies will develop action plans to investigate the potential for PFOA release and exposure.

June 2003

1. **Analysis of "Aged" Products and "In Use" Articles:** Develop appropriate analytical methods and study protocols to conduct these analyses. TRP will need to define appropriate "aging" and "in use" conditions to conduct these tests.
2. **Characterize Potential Release of PFOA from Telomer-Treated Article Manufacture:** Develop estimates of potential release of PFOA related to the manufacture of three primary article types (carpet, textiles and paper). The release scenarios to be developed will cover occupational and environmental exposure related to potential release of PFOA from article manufacture.
3. **Analysis of Incineration:** Review information on types of incineration tests that may be applicable and provide a summary to EPA.

July 2003

1. **Product and Article Analysis:** Submit final report from screening study on Product and Article Analysis
2. **Characterize Potential Release of PFOA from Telomer-Treated Article Manufacture:** Develop and demonstrate required sampling and analytical methods for PFOA determination in the mill simulations.
3. **Biodegradation Studies (8-2 Telomer Alcohol):** Deliver results from biodegradation analysis of 8-2 Telomer Alcohol with ^{14}C-labeled material (TRP study).
4. **Biodegradation Analysis (Polymeric Products):** Conduct biodegradation analysis for PFOA of polymeric products used in the Product and Article Analysis under Item 1.
5. **Analysis of Incineration:** Compile information on telomer-based polymeric products and uses to understand the ultimate fate and disposal routes (landfill versus incineration) for telomer-treated articles in the United States.
6. **Product Stewardship for Customers:** TRP member companies will have additional product stewardship programs in place developed with reference to for Responsible Care guidelines outlined in the SOCMA Management Practices / Product Stewardship Code.

August 2003

1. **Characterize Potential Release of PFOA from Telomer-Treated Article Manufacture:** Submit results of release estimations of PFOA from article manufacture.

2. **Biodegradation Analysis (Polymeric Products):** Submit results of biodegradation analyses for PFOA in polymeric products.
3. **Product Stewardship for Customers:** Provide TRP Safe Handling and Use Handbook to customers for review.

September 2003

1. **Analysis of "Aged" Products and "In Use" Articles:** Conduct "aging" and "in use" analyses of the specific products and treated articles (carpet, textiles, paper) in TRP-sponsored work under Item 1, once methods and protocols are available study conducted.
2. **Characterize Potential Release of PFOA from Telomer-Treated Article Manufacture:** Initiate mill simulations of the potential release of PFOA from telomer-treated article manufacture to estimate the potential occupational and environmental exposure of PFOA from article manufacture. Continue mill simulations into Qtr 4 / 2003.